

WHAT IS CLAIMED IS:

1. A method for managing internal components of power plants using a network-based system including a server system coupled to a centralized interactive database and at least one client system, said method comprising the steps of:

5 receiving information relating to internal components of a specific plant;

storing the information into a centralized database;

updating the centralized database with information received;

10 cross-referencing the information received against the specific plant;

and

providing information in response to an inquiry.

2. A method according to Claim 1 wherein said step of receiving information further comprises the step of receiving data for at least one of a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate.

3. A method according to Claim 1 wherein said step of receiving information further comprises the step of receiving data for at least one of a Dresden 2 plant, a Dresden 3 plant, a LaSalle 1 plant, a LaSalle 2 plant, a Quad Cities 1 plant, and a Quad Cities 2 plant.

4. A method according to Claim 1 wherein said step of receiving information further comprises the step of receiving data for at least one of a Boiling Water Reactor Plant, Pressurized Water Reactor Plant, and an Advanced Liquid Metal Reactor Plant.

5. A method according to Claim 1 wherein said step of storing information further comprises the step of storing data for at least one of a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support

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and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate.

6. A method according to Claim 1 wherein said step of storing information further comprises the step of storing data for at least one of a Dresden 2 plant, a Dresden 3 plant, a LaSalle 1 plant, a LaSalle 2 plant, a Quad Cities 1 plant, and a Quad Cities 2 plant.

7. A method according to Claim 1 wherein said step of storing information further comprises the step of storing data for at least one of a Boiling Water Reactor Plant, Pressurized Water Reactor Plant, and an Advanced Liquid Metal Reactor Plant.

8. A method according to Claim 1 wherein said step of storing information further comprises the step of storing configuration drawings section providing details about the plant specific configuration of a specific component including weld callouts.

9. A method according to Claim 1 wherein said step of storing information further comprises the step of storing susceptibility data providing detail information about a given weld including a base material, a filler material and a susceptibility ranking, the susceptibility ranking based on configuration of the weld and fleet historical information.

10. A method according to Claim 1 wherein said step of storing information further comprises the step of storing fleet information.

11. A method according to Claim 10 wherein said step of storing fleet information further comprises the step of storing fleet cracking information which includes at least one of a where a crack occurred, when a crack occurred, in which plant a crack occurred, details about cracking, a cause related to cracking, any repair information relating to the crack, and a summary of the results of the cracking.

12. A method according to Claim 1 wherein said step of storing information further comprises the step of storing Inspection Tool information including capabilities and qualifications.

13. A method according to Claim 1 wherein said step of storing information further comprises the step of storing Baseline Inspection information, which includes recommended inspection criteria.

5 14. A method according to Claim 1 wherein said step of storing information further comprises the step of storing Inspection Experience information.

15. A method according to Claim 1 wherein said step of storing information further comprises the step of storing Mitigation Methods providing information on various mitigation options for a specific component.

10 16. A method according to Claim 1 wherein said step of storing information further comprises the step of storing Repair Methods that are available for a specific component.

15 17. A method according to Claim 16 wherein said step of storing repair methods further comprises the step of storing at least one of a repair method, details about the repair method, who has implemented the repair method, how long it takes to implement the repair method, and a contact information.

18. A method according to Claim 1 wherein said step of storing the information into a centralized database further comprises the steps of:

storing the information against a component identifier; storing the information against a plant identifier; and

20 storing the information against the employee identifier.

19. A method according to Claim 1 wherein said step of storing information further comprises the steps of:

tracking information on a real time basis; and

25 storing information on a real time basis by updating stored information by adding the new information to the centralized database on a real time basis to provide up-to date information instantaneously to the user upon a request.

20. A method according to Claim 1 wherein said step of updating the centralized database further comprises the steps of adding and deleting information.

5 21. A method according to Claim 1 wherein said step of updating the centralized database further comprises the step of entering information on-line.

22. A method according to Claim 21 wherein said step of entering information further comprises the step of entering information at least through one of a voice activation command and a device connected to the client system.

10 23. A method according to Claim 1 wherein said step of providing training information in response to an inquiry further comprises the steps of:

downloading requested information from a server system; and

displaying requested information on a client system in response to the inquiry.

15 24. A method according to Claim 1 wherein said step of providing information further comprises the step of printing requested information.

25. A method according to Claim 1 wherein said step of providing information further comprises the step of accepting an inquiry from a user.

26. A method according to Claim 1 wherein said step of accepting an inquiry further comprises the steps of:

20 displaying information on the client system identifying at least one of an option relating to a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate; and

25 receiving an inquiry from the client system regarding at least one of an option relating to a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate.

27. A method according to Claim 1 wherein said step of accepting an inquiry further comprises the steps of:

displaying information on the client system identifying at least one of an option relating to a Dresden 2 plant, a Dresden 3 plant, a LaSalle 1 plant, a LaSalle 2 plant, a Quad Cities 1 plant, and a Quad Cities 2 plant; and

receiving an inquiry from the client system regarding at least one of an option relating to a Dresden 2 plant, a Dresden 3 plant, a LaSalle 1 plant, a LaSalle 2 plant, a Quad Cities 1 plant, and a Quad Cities 2 plant.

28. A method according to Claim 26 wherein said step of receiving an inquiry from the client system further includes the step of submitting a request through pull down menus.

29. The method according to Claim 26 wherein said step of displaying information further includes the step of displaying an HTML document downloaded by the server system.

30. A method according to Claim 26 wherein said step of displaying further comprises the step of displaying at least one alternative from various alternatives available to the user.

31. A method according to Claim 18 wherein said step of downloading the information in response to the inquiry further comprises the steps of:

accessing the centralized database;

searching the database regarding the specific inquiry;

retrieving information from the database; and

transmitting the retrieved information to the client system for display by the client system.

32. The method according to Claim 1 wherein the client system and the server system are connected via a network and wherein the network is one of a wide area network, a local area network, an intranet and the Internet.

33. A network-based system for managing assets, said system comprising:

a client system comprising a browser;

a data storage device for storing information;

5 a server system configured to be coupled to said client system and said database, said server system further configured to:

receive information relating to internal components of a specific plant;

store the information into a centralized database;

update the centralized database with information received;

10 cross-reference the information received against the specific plant; and

provide information in response to an inquiry.

34. A system according to Claim 31 wherein said client system is further configured with:

15 a displaying component for displaying at least one of an option relating to a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate; and

20 a sending component to send an inquiry to the server system so that the server system can process and download the requested information to the client system.

35. A system according to Claim 34 wherein the sending component functions in response to a click of a mouse button.

25 36. A system according to Claim 34 wherein the sending component functions in response to a voice command.

37. The client system of Claim 34 wherein said system is further configured to be protected from access by unauthorized individuals.

38. A system according to Claim 34 wherein said server system is further configured with:

5 a collection component for collecting information from users into the centralized database;

a tracking component for tracking information on an on-going basis;

10 a displaying component for displaying information on at least one of an option relating to a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate;

15 a receiving component for receiving an inquiry from the client system regarding at least one of an option relating to a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate; and

an accessing component for accessing the centralized database and causing the retrieved information to be displayed on the client system.

20 39. A system according to Claim 38 wherein said server system further configured with a receiving component for receiving an inquiry to provide information from one of a plurality of users.

25 40. A system according to Claim 38 wherein said server system further configured with a processing component for searching and processing received inquiries against the data storage device containing a variety of information collected by the collection component.

41. A system according to Claim 38 wherein said server system further configured with a retrieving component to retrieve information from the data storage device.

42. A system according to Claim 38 wherein said server system further configured with an information fulfillment component that downloads the requested information after retrieving from the data storage device to the plurality of users in the order in which the requests were received by the receiving component.

5 43. A system according to Claim 33 wherein said server system further configured to receive data for at least one of a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate.

10 44. A system according to Claim 33 wherein said server system further configured to receive data for at least one of a Dresden 2 plant, a Dresden 3 plant, a LaSalle 1 plant, a LaSalle 2 plant, a Quad Cities 1 plant, and a Quad Cities 2 plant.

15 45. A system according to Claim 33 wherein said server system further configured to receive data for at least one of a Boiling Water Reactor Plant, Pressurized Water Reactor Plant, and an Advanced Liquid Metal Reactor Plant.

20 46. A system according to Claim 33 wherein said server system further configured to store data for at least one of a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate.

25 47. A system according to Claim 33 wherein said server system further configured to store data for at least one of a Dresden 2 plant, a Dresden 3 plant, a LaSalle 1 plant, a LaSalle 2 plant, a Quad Cities 1 plant, and a Quad Cities 2 plant.

48. A system according to Claim 33 wherein said server system further configured to store data for at least one of a Boiling Water Reactor Plant, Pressurized Water Reactor Plant, and an Advanced Liquid Metal Reactor Plant.

30 49. A system according to Claim 33 wherein said server system further configured to store configuration drawings section providing details about the plant specific configuration of a specific component including weld callouts.

50. A system according to Claim 33 wherein said server system further configured to store susceptibility data providing detail information about a given weld including a base material, a filler material and a susceptibility ranking, the susceptibility ranking based on configuration of the weld and fleet historical information.

51. A system according to Claim 33 wherein said server system further configured to store fleet information.

52. A system according to Claim 33 wherein said server system further configured to store fleet cracking information which includes at least one of a where a crack occurred, when a crack occurred, in which plant a crack occurred, details about cracking, a cause related to cracking, any repair information relating to the crack, and a summary of the results of the cracking.

53. A system according to Claim 33 wherein said server system further configured to store Inspection Tool information including capabilities and qualifications.

54. A system according to Claim 33 wherein said server system further configured to store Baseline Inspection information, which includes recommended inspection criteria.

55. A system according to Claim 33 wherein said server system further configured to store Inspection Experience information.

56. A system according to Claim 33 wherein said server system further configured to store Mitigation Methods providing information on various mitigation options for a specific component.

57. A system according to Claim 33 wherein said server system further configured to store Repair Methods that are available for a specific component.

58. A system according to Claim 33 wherein said server system further configured to store at least one of a repair method, details about the repair method, who has implemented the repair method, how long it takes to implement the repair method, and a contact information.

59. A system according to Claim 33 wherein said server system further configured to store of identifying a list of courses to be taken to maintain proficiency of the employee.

5 60. A system according to Claim 33 wherein said server system further configured to store membership information of employees in various trade associations.

61. A system according to Claim 33 wherein said server system further configured to:

store the information against a component identifier;

10 store the information against a plant identifier; and

store the information against the employee identifier.

62. A system according to Claim 33 wherein said server system further configured to:

track information on a real time basis; and

15 store information on a real time basis by updating stored information by adding the new information to the centralized database on a real time basis to provide up-to date information instantaneously to the user upon a request.

63. A system according to Claim 33 wherein said server system further configured to add and delete information.

20 64. A system according to Claim 33 wherein said server system further configured to enter information on-line.

65. A system according to Claim 64 wherein said server system further configured to enter information at least through one of a voice activation command and a device connected to the client system.

25 66. A system according to Claim 33 wherein said server system configured to provide information in response to an inquiry further configured to:

download requested information from a server system; and

display requested information on a client system in response to the inquiry.

67. A system according to Claim 33 wherein said server system further configured to print requested information.

5 68. A system according to Claim 33 wherein said server system further configured to accept an inquiry from a user.

69. A system according to Claim 33 wherein said server system further configured to:

10 display information on the client system identifying at least one of an option relating to a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate; and

15 receive an inquiry from the client system regarding at least one of an option relating to a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate.

20 70. A system according to Claim 33 wherein said server system further configured to:

display information on the client system identifying at least one of an option relating to a Dresden 2 plant, a Dresden 3 plant, a LaSalle 1 plant, a LaSalle 2 plant, a Quad Cities 1 plant, and a Quad Cities 2 plant; and

25 receive an inquiry from the client system regarding at least one of an option relating to a Dresden 2 plant, a Dresden 3 plant, a LaSalle 1 plant, a LaSalle 2 plant, a Quad Cities 1 plant, and a Quad Cities 2 plant.

71. A system according to Claim 33 wherein said server system further configured to:

track information on a real time basis; and

store information on a real time basis by adding new information to the centralized database on a real time basis to provide up-to date information instantaneously to the user upon a request.

5 72. A system according to Claim 33 wherein said server system further configured to receive information entered on-line.

73. A system according to Claim 72 wherein said server system further configured to receive information entered through at least one of a voice activation command and a device connected to the client system.

10 74. A system according to Claim 69 wherein said server system further configured to submit a request through pull down menus.

75. A system according to Claim 69 wherein said server system further configured to display an HTML document downloaded by the server system.

15 76. A system according to Claim 69 wherein said server system further configured to display at least one alternative out of various alternatives available to the user.

77. A network-based system for managing power plants and their internal components, said system comprising:

a client system comprising a browser;

a data storage device for storing information;

20 a server system configured to be coupled to said client system and said database, said server system further configured to:

access the centralized database;

search the database regarding a specific inquiry;

retrieve information from the database; and

25 cause the retrieved information to be displayed on the client system in response to the specific inquiry.

78. A management system according to Claim 77 wherein the client system and the server system are connected via a network selected from one of a wide area network, a local area network, an intranet and the Internet.

5 79. A management system in accordance with Claim 78 wherein the server system is further configured to:

download information to be displayed on client system's graphical user interface; and

print at least some of the downloaded information.

10 80. A system according to Claim 79 wherein the information to be downloaded is in a pre-determined format.

81. A system according to Claim 79 wherein the information to be printed is in a pre-determined format.

15 82. A system according to Claim 77 wherein said server system further configured to protect said data storage device from access by unauthorized individuals.

83. A web-based system for managing and tracking the performance of internal components of power plants, said system comprising:

a client system comprising a browser;

a data storage device for storing component specific information;

20 a server system configured to be coupled to said client system and said database, said server system further configured to:

receive component specific information;

store the component specific information against each plant;
and

25 provide the information to a customer to determine a type of inspection to be performed on a specific component to address the specific component problem.

84. A system according to Claim 83 wherein said server system further configured to store information on at least one of a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate.

85. A system according to Claim 84 wherein said server system further configured to predict the probability of timing for failure of the component based on the component specific information.

86. A network-based system for facilitating work performance of service personnel, said system comprising:

a client system comprising a browser;

a data storage device for storing component specific information;

a server system configured to be coupled to said client system and said database, said server system further configured to:

identify a problem relating to a specific component;

retrieve historical data relating to the specific component;

analyze the problem based on the historical data; and

develop potential solutions to address the problem relating to the specific component.

87. A system according to Claim 86 wherein said server system further configured to track and dispose each problem as appropriate.

88. A system according to Claim 87 wherein said server system further configured to at least one of an entering the initial disposition, an entering work in progress notes and an entering final disposition relating to each problem.

89. A system according to Claim 86 wherein said server system further configured to generate management reports to apprise the management of on-going service personnel activities.

90. A system according to Claim 86 wherein said server system and said client system are connected via a network and wherein the network is one of a wide area network, a local area network, an intranet and the Internet.

5 91. A system according to Claim 86 wherein said server system further configured to:

download requested information from a server system; and

display requested information on a client system in response to the inquiry.

10 92. A system according to Claim 86 wherein said server system further configured to print requested information.

93. A system according to Claim 86 wherein said server system further configured to accept an inquiry from a user.

15 94. A system according to Claim 86 wherein said server system further configured to:

display information on to the client system; and

receive an inquiry from the client system.

20 95. A system according to Claim 94 wherein said server system further configured to submit a request through pull down menus, check boxes, and hypertext links.

96. A system according to Claim 94 wherein said server system further configured to display an HTML document downloaded by the server system.

97. A system according to Claim 94 wherein said server system further configured to display at least one alternative out of various alternatives available to the user.

25 98. A management system according to Claim 86 wherein the client system and the server system are connected via a network selected from one of a wide area network, a local area network, an intranet and the Internet.

99. A management system in accordance with Claim 86 wherein the server system is further configured to:

download information to be displayed on client system's graphical user interface; and

print at least some of the downloaded information.

100. A system according to Claim 99 wherein the information to be downloaded is in a pre-determined format.

101. A system according to Claim 100 wherein the information to be printed is in a pre-determined format.

102. A system according to Claim 86 wherein said server system further configured to protect said data storage device from access by unauthorized individuals.

103. Apparatus for managing and tracking each plant and its internal components, said apparatus comprising:

a client system comprising a browser;

a data storage device for storing internal components information;

a server system coupled to said client system and said database by a communication link, said server system further configured to:

store internal components information;

update internal components information against a plant identifier into a centralized database; and

provide the internal component information in response to an inquiry to diagnose and fix a specific problem.

104. Apparatus in accordance with Claim 103 wherein the communication link is at least one of a wide area network, a local area network, an intranet and the Internet.

105. Apparatus in accordance with Claim 103 wherein the information is stored in to at least one of a Background Category, a Field History Category, an Inspection Category, a Mitigation Category, and a Repair Category.

5 106. A computer program embodied on a computer readable medium for managing assets, comprising:

a code segment that identifies a problem relating to a specific component;

a code segment that retrieves historical data relating to the specific component;

10 a code segment that analyzes the problem based on the historical data; and

a code segment that develops potential solutions to address the problem relating to the specific component.

15 107. The computer program as recited in Claim 106 further includes a code segment that tracks and disposes each problem as appropriate.

108. The computer program as recited in Claim 106 further includes a code segment that accepts at least one of an entering the initial disposition, an entering work in progress notes and an entering final disposition relating to each problem.

20 109. The computer program as recited in Claim 106 further includes a code segment that generates management reports to apprise the management of on-going service personnel activities.

25 110. The computer program as recited in Claim 106 wherein said server system and said client system are connected via a network and wherein the network is one of a wide area network, a local area network, an intranet and the Internet.

111. The computer program as recited in Claim 106 further includes a code segment that evaluates performance of each plant in a standardized format.

112. The computer program as recited in Claim 106 wherein the network is a wide area network operable using a protocol including at least one of TCP/IP and IPX.

5 113. The computer program as recited in Claim 106 wherein the data is received from the user via a graphical user interface.

114. The computer program as recited in Claim 106 further includes a code segment that monitors work load and manages performance of service personnel.

10 115. The computer program as recited in Claim 106 includes a code segment that displays information through an HTML document downloaded by the server system.

15 116. The computer program as recited in Claim 106 wherein the code segment that provides training information in response to an inquiry, further comprising a code segment that prints requested information in a pre-determined format.

117. The computer program as recited in Claim 106 further comprising:

a code segment that accepts an inquiry;

20 a code segment that displays information on to the client system identifying at least one of an option relating to a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate; and

25 a code segment that receives an inquiry from the client system regarding at least one of an option relating to a Core Spray Internal piping, a Core Spray Sparger, a Lower plenum, a Shroud, a Shroud support and Access Hole Cover, a Jet Pump Diffuser, a Jet Pump Riser and riser Brace, a Jet Pump Inlet Mixer, a Jet Pump Sensing Line, an LPCI, a Top Guide 4, and a Core Plate.

118. The computer program as recited in Claim 106 includes a code segment that displays information through an HTML document downloaded by the server system.

5 119. The computer program as recited in Claim 106 further comprising:

a code segment that accesses the centralized database;

Q a code segment that searches the database regarding the specific inquiry;

a code segment that retrieves information from the database; and

10 a code segment that causes the retrieved information to be displayed on the client system.

120. The computer program as recited in Claim 106, and further comprising a code segment that monitors the security of the system by restricting access to unauthorized individuals.

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